

CLAIMS

1. A centrifugal type production apparatus for a hollow fiber membrane module, for bonding and fixing at least one end part of a hollow fiber membrane stored in a module case and the module case with each other with a potting resin by utilizing a centrifugal force, being characterized in that the production apparatus comprises:

a fixing jig having a heating means and a temperature detecting means, which supports a potting working part of the end part of the hollow fiber membrane module; and

a control means for controlling a heating capacity of the heating means based on a calculated value of difference between a temperature of the fixing jig detected by the temperature detecting means and a setting temperature of the fixing jig that is set preliminarily.

2. The production apparatus for the hollow fiber membrane module according to claim 1, being characterized in that a temperature accuracy of the control means is in a range of $\pm 4^{\circ}\text{C}$ to the setting temperature.

3. The production apparatus for the hollow fiber membrane module according to claim 1, being characterized in that the centrifugal force applied to the potting working part is in a range of 10 to 100 times of gravity.

4. The production apparatus for the hollow fiber membrane module according to claim 1, being characterized in that the

fixing jig comprises the heating means and the temperature detecting means which are supported by the fixing jig in a closely contacted state.

5. The production apparatus for the hollow fiber membrane module according to claim 1 or 4, being characterized in that the heating means is an electric type heater.

6. The production apparatus for the hollow fiber membrane module according to claim 1, being characterized in that a fluid is sealed in the fixing jig.

7. The production apparatus for the hollow fiber membrane module according to claim 1, being characterized in that the production apparatus comprises a rotation control means for controlling a rotational frequency of the fixing jig, and an output control means for controlling an output of the heating means based on a temperature detection information of the fixing jig detected by the temperature detecting means.

8. The production apparatus for the hollow fiber membrane module according to claim 1, being characterized in that the fixing jig comprises at least two or more pieces of block members and comprises a temperature control means for controlling the block members at different temperatures respectively.

9. The production apparatus for the hollow fiber membrane module according to any one of claims 1 to 8, being characterized in that the production apparatus comprises a pressure reducing mechanism to make an environment of the potting working part

a decompressed condition of 500 hPa or less.

10. A centrifugal type production apparatus for a hollow fiber membrane module, for bonding and fixing at least one end part of a hollow fiber membrane stored in a module case and the module case with each other with a potting resin by utilizing a centrifugal force, being characterized in that the production apparatus comprises

a pressure reducing mechanism to make an environment of a potting working part a decompressed condition of 500 hPa or less.

11. A method for producing a hollow fiber membrane module, being characterized in that the method comprises steps of

using the production apparatus for the hollow fiber membrane module according to any one of claims 1 to 10, using a thermoplastic resin as the potting resin, calculating the difference between the temperature of the fixing jig detected by the temperature detecting means and the setting temperature of the fixing jig that is set preliminarily, and bonding and fixing the end part of the hollow fiber membrane and the module case while controlling the heating capacity of the heating means based on the calculated value.

12. The method for producing the hollow fiber membrane module according to claim 11, being characterized in that the potting resin comprises fine particles of a thermoplastic resin, and the potting working part is filled with a mixture of the

fine particles of the thermoplastic resin and a liquid.

13. The method for producing the hollow fiber membrane module according to claim 11 or 12, being characterized in that the potting resin is a polyolefin based resin.

14. The method for producing the hollow fiber membrane module according to claim 13, being characterized in that the potting resin is a polyethylene resin.

15. The method for producing the hollow fiber membrane module according to claim 11, being characterized in that a filling ratio of the hollow fiber membrane to a volume of the potting working part is 20% or more and 60% or less.

16. A method for producing a hollow fiber membrane module, being characterized in that the method comprises steps of

using the production apparatus for the hollow fiber membrane module according to any one of claims 1 to 10, using a thermoplastic resin as a component of the hollow fiber membrane, calculating the difference between the temperature of the fixing jig detected by the temperature detecting means and the setting temperature of the fixing jig that is set preliminarily, and bonding and fixing the end part of the hollow fiber membrane and the module case while controlling the heating capacity of the heating means based on the calculated value.

17. The method for producing the hollow fiber membrane module according to claim 16, being characterized in that the component of the hollow fiber membrane is a polyolefin based

resin.

18. The method for producing the hollow fiber membrane module according to claim 17, being characterized in that the component of the hollow fiber membrane is a polyethylene resin.

19. The method for producing the hollow fiber membrane module according to claim 16, being characterized in that a filling ratio of the hollow fiber membrane to a volume of the potting working part is 20% or more and 60% or less.